

TECHNICAL REPORT
71-1-TL

AD

**BIBLIOGRAPHY OF TECHNICAL PUBLICATIONS
AND PAPERS**

JULY 1969 - JUNE 1970

July 1970

**UNITED STATES ARMY
NATICK LABORATORIES
Natick, Massachusetts 01760**



This document has been approved for public release and sale; its distribution is unlimited.

Citation of trade names in this report does not constitute an official indorsement or approval of the use of such items.

Destroy this report when no longer needed. Do not return it to the originator.

This document has been
approved for public
release and sale; its
distribution is unlimited.

AD _____

TECHNICAL REPORT
71-1-TL

BIBLIOGRAPHY OF TECHNICAL PUBLICATIONS AND PAPERS

July 1969 - June 1970

July 1970

U. S. ARMY NATICK LABORATORIES
Natick, Massachusetts 01760

FOREWORD

This bibliography is a list of technical publications and papers by personnel of the U. S. Army Natick Laboratories and its contractors for the period July 1969 through June 1970.

Reprints of journal articles, in some cases, are available from the individual authors. Copies of technical reports may be obtained from (1) the Defense Documentation Center, Cameron Station, Alexandria, Virginia 22314, or (2) the Clearinghouse for Federal Scientific and Technical Information, Springfield, Virginia 22151. The "AD" number should be cited when ordering copies of reports. Those reports marked with an asterisk (*) are not available for distribution outside the agencies of the Department of Defense. Technical papers refer to presentations for which no printed copies exist.

Technical Library

Contents

	<u>Page</u>
Commanding General	1
Deputy Commander	2
Office of Scientific Director	3
Quality Assurance and Engineering Office	5
Technical Plans Office	6
Airdrop Engineering Laboratory	7
Clothing and Personal Life Support Equipment Laboratory	9
Earth Sciences Laboratory	14
Food Laboratory	17
General Equipment and Packaging Laboratory	28
Pioneering Research Laboratory	32
Index to authors	45

ABSTRACT

A bibliographic listing of technical publications and papers by the personnel of the U. S. Army Natick Laboratories and its contractors for the period July 1969 through June 1970.

U. S. ARMY NATICK LABORATORIES

COMMANDING GENERAL

Technical Papers

1. GERACE, F. J. Research and development in food. Subsistence Seminar, Defense Supply Association National Convention, Washington, D. C., 15 October 1969.

DEPUTY COMMANDER

Technical Papers

2. JAMES, H. Remarks. NAS-NRC Committee on Military Geography, U. S. Army Natick Laboratories, Natick, Mass., 10-11 July 1969.
3. _____ Korea. Massachusetts 38th Lodge of Instruction, Sea & Surf, Framingham, Mass., 25 September 1969.
4. LEVIN, W. B. The operation of the subsistence supply line to and in Vietnam for U. S. and free world forces. Natick Laboratories Women's Club, U. S. Army Natick Laboratories, Natick, Mass., 14 January 1970.
5. _____ DOD food research, development, testing and engineering program. 85th Joint Medical Research Conference, The Pentagon, Washington, D. C., 22 January 1970.
6. _____ Remarks. Conference on Mountain Climbing Clothing & Equipment, U. S. Army Natick Laboratories, Natick, Mass., 17 February 1970.
7. _____ Food systems and research in the Department of Defense. Food Update Management Seminar, Marriott Motor Hotel, Chicago, Ill., 22-25 March 1970.
8. _____ Research, development, and engineering of food systems - a new approach by the Department of Defense. 24th Annual Meeting, Research and Development Associates for Military Food and Packaging Systems, Inc., Sheraton-Chicago Hotel, Chicago, Ill., 14-16 April 1970.
9. _____ Remarks. Spring Meeting, Packaging, Handling and Transportability Division, American Ordnance Association, U. S. Army Natick Laboratories, Natick, Mass., 28-29 April 1970.
10. _____ Remarks. NAS-NRC Committee on Radiation Preservation of Food, U. S. Army Natick Laboratories, Natick, Mass., 5 May 1970.
11. _____ Graduation address to Army Commissary Management Class 70-6. U. S. Army Quartermaster School, Fort Lee, Va., 5 June 1970.

OFFICE OF SCIENTIFIC DIRECTOR

Technical Reports

12. FLANAGAN, J. H. The function of specifications. 70-14-OSD, July 1969 (AD 700988).
13. FLENTGE, R. L., and R. L. BUSTEAD. Manufacturing requirements of food for aerospace feeding. USAF School of Aerospace Medicine, Aerospace Medical Division (AFSC), May 1970.
14. GORFIEN, H., A. R. RAHMAN, K. R. JOHNSON, and E. E. ANDERSON. Effects of a controlled atmosphere system on the storage life of lettuce. Part I: Laboratory tests. 70-23-FL (FL-99), October 1969 (AD 861316).
15. ROSS, E. W., JR. Probability of defective assemblies when component tolerances are incorrect. 70-46-OSD, December 1969 (AD 701863).

Journal Articles

16. ROSS, E. W., JR. Approximate analysis of a flat, circular parachute in steady descent. J. Aircraft, 7(3):266-271 (1970).
17. _____ Large deflections of an inflated cylindrical tent. J. Appl. Mech., 36(4):845-851 (1969).

Technical Papers

18. FLANAGAN, J. H. A review of the functions of the U. S. Army Natick Laboratories. Everett Kiwanis Club, Everett, Mass., 14 October 1969.
19. ROSS, E. W., JR. Large deflections of an inflated, cylindrical tent. ASME Winter Annual Meeting, Los Angeles, Calif., 17 November 1969.
20. _____ A general theory of parachute opening. 16th Conference, Army Mathematicians, U. S. Army STAG, Bethesda, Md., 26 May 1970.

OFFICE OF SCIENTIFIC DIRECTOR

Technical Papers (continued)

21. SIELING, D. H. Technician affiliation and training in a government laboratory. 16th Annual Meeting, Institute of Environmental Sciences (IES), Sheraton-Boston Hotel, Prudential Center, Boston, Mass., 14 April 1970.

Other Publications

22. BYRNE, R. J. The selection of polynomial density functions and their application to reliability problems. Ph.D. Dissertation, University of Massachusetts, Amherst, Mass., December 1969.

QUALITY ASSURANCE AND ENGINEERING OFFICE

Technical Reports

23. WERKOWSKI, S. J., and R. S. SMITH. The application of the Poisson distribution in the simulation of attack by fragmentation munitions on personnel armor. 70-66-QA&EO, June 1970.

TECHNICAL PLANS OFFICE

Technical Reports

24. BENEDICT, R. P., A. L. DUNGAN, C. K. WILCOX, R. L. McGAUGHEY, R. C. MEYERHOLZ, JR., and S. E. LACEY. An analysis of systems for feeding hot meals to the army in the field during 1975-1990 time frame. 70-30-TP, November 1969 (AD 699341).
25. Bibliography of technical publications and papers: July 1968 - June 1969, U. S. Army Natick Laboratories. 70-1, June 1969 (AD 696791).

Journal Articles

26. DUNGAN, A. L. At home with microwaves. Microwave Energy Applications Newsletter, 2(5):3-6 (1969).

AIRDROP ENGINEERING LABORATORY

Technical Reports

27. ANTKOWIAK, H. E. Airdrop impact capability of the Redeye missile monopak container. 70-53-AD, February 1970 (AD 872201).*
28. CHAKOIAN, G. A parachute retrorocket recovery system for airdrop of heavy loads. 70-34-AD, November 1969 (AD 699342).
29. GOODRICK, T. F. Wind effect on gliding parachute systems with non-proportional automatic homing control. 70-28-AD, November 1969 (AD 698456).
30. RIPPERGER, E. A., and S. F. JAN. The effect of airdrop impact on complex structures. University of Texas at Austin, Contract No. DAAG17-67-C-0189. 70-55-AD, December 1969.
31. _____, and W. S. CHANG. Stress and deflection in type II and type IV airdrop platforms. University of Texas at Austin, Contract No. DAAG17-67-C-0189. 70-56-AD, December 1969.
32. _____ Variations in the crushing strength of paper honeycomb. University of Texas at Austin, Contract No. DAAG17-67-C-0189. 70-57-AD, December 1969.
33. WOLFF, J. W. Emergency rescue parachutes in helicopters. 70-19-AD, July 1969 (AD 694355).

Technical Papers

34. BROWN, E. J. Army platform developments. Joint Technical Coordinating Group (JTCCG) Meeting Airdrop, U. S. Army Aviation Systems Command, St. Louis, Mo., 15-16 July 1969; Kelly Air Force Base, San Antonio, Tex., 12, 13, 16, January 1970.
35. _____ Report on type II and III platform requirements. USTRICOM Joint Air Movement Board Meeting, Scott Air Force Base, Ill., 23-24 September 1969; Headquarters, Third U. S. Army, Ft. McPherson, Ga., 27-28 January 1970.

AIRDROP ENGINEERING LABORATORY

Technical Papers (continued)

36. CHAKOIAN, G. A parachute retrorocket recovery system for airdrop of heavy loads. Aerodynamic Deceleration Symposium sponsored by: German Society for Aeronautics and Astronautics (DGLR), Braunschweig Research Center of the German Research Institute for Aeronautics and Astronautics (DFVLR), Advisory Group for Aerospace Research (AGARD), Technical University of Braunschweig, Germany, 17 September 1969.
37. DE SANTIS, G. C. The internal and external flow field associated with parachutes during inflation. Army Science Conference, West Point, N. Y., June 1970.
38. FALABELLA, G., JR. Highlights of U. S. Army airdrop program. 1969 Air Transport Working Party Meeting, NATO (MAS), London, 8-19 December 1969.
39. _____ A presentation on U. S. Army airdrop R&D activities. 17th Air Standardization Coordinating Committee Meeting, Working Party 44, London, 13-28 April 1970.
40. SHUTE, S. J., JR. The design and test of a parachute to be used in cluster to airdrop 50,000 lbs. Aerodynamic Deceleration, University of Minnesota, 14 July 1969.

Other Publications

41. DE SANTIS, G. C. The flow field associated with a porous parachute during various stages of inflation. Master's Thesis, Northeastern University, Boston, Mass., September 1969.

CLOTHING AND PERSONAL LIFE SUPPORT EQUIPMENT LABORATORY

Technical Reports

42. ASSAF, J. E. Development of lightweight insulated footwear. 70-6-CE (C&PLSEL-67), July 1969 (AD 695643).
43. COHEN, G. The recovery of waterfowl feathers and down from used sleeping bags. 70-38-CE (TS-168), October 1969 (AD 701002).
44. CRAIN, B., JR., and V. D. IACONO. Development of a personal cooling system for explosive ordnance disposal personnel. 70-37-CE (C&PLSEL-69), December 1969 (AD 702245).
45. DUXBURY, V., E. ROSA, and D. H. PFISTER. Development of lightweight, bulky batting-type filling material for sleeping bags. Lowell Technological Institute Research Foundation, Contract No. DAAG17-68-C-0039. 70-31-CE (TS-166), September 1969 (AD 698491).
46. FIGUCIA, F., JR. The effect of strain rate and ply geometry on the stress-strain properties of nylon yarns. 70-25-CE (TS-165), September 1969 (AD 697747).
47. FREDERICK, E. B., and M. C. HENRY. A study of seam leakage in coated fabrics. 70-59-CE (TS-169), April 1970 (AD 708874).
48. HEALY, E. M., A. O. RAMSLEY, and B. A. NATSIOS. Equilibrium chemical characteristics of nylon-acrylic acid graft copolymer. 70-3-CE (C&PLSEL-66), July 1969 (AD 699340).
49. JOHNSON, N. B., D. E. GOEBEL, and S. H. ROBERTSON. An appraisal of the postcrash fire environment. Dynamic Science, Contract No. DAAG17-69-C-0115. 70-22-CE (C&PLSEL-70), September 1969 (AD 699826).
50. LAIBLE, R. C., and M. C. HENRY. A review of the development of ballistic needle-punched felts. 70-32-CE (TS-167), October 1969.
51. LYONS, W. J., F. L. SCARDINO, and B. C. GOSWAMI. A study of felts for personal armor. Textile Research Institute, Contract No. DAAG17-68-C-0040. 70-13-CE (TS-164), August 1969 (AD 695644).
52. MERRITT, G. J., and D. J. ZOLNER. Evaluation of cold-water laundry detergents using artificially-soiled cotton test fabrics. 70-42-CE (C&PLSEL-72), February 1970 (AD 865771).*

CLOTHING AND PERSONAL LIFE SUPPORT EQUIPMENT LABORATORY

Technical Reports (continued)

53. RAMSDELL, F. L. Investigation of plastic materials for cooking utensils used in microwave ovens. 70-40-CE (C&PLSEL-71), December 1969 (AD 865036).*
54. RODZEN, R., F. SCRIBANO, M. BURNS, R. SINGER, and E. R. BARRON. Development of sizing criteria for aircrew armor systems. IIT Research Institute, Contract No. DA19-129-AMC-1002(N). 70-47-CE (C&PLSEL-73), January 1970 (AD 872283).*
55. SCRIBANO, F., and M. BURNS. Advanced aircrew armor suspension systems. IIT Research Institute, Contract No. DAAG17-68-C-0029. 70-51-CE (C&PLSEL-74), January 1970.
56. _____, M. BURNS, and E. R. BARRON. Development of armor load profile analyzer. IIT Institute, Contract No. DAAG17-69-C-0008. 70-65-CE (C&PLSEL-75), April 1970.
57. WEINER, L. I. The wear resistance of cotton textiles. 70-2-CE (TS-163), July 1969 (AD 692865).
58. WILSON, A. F. Initial compounding studies of polyphosphazene rubber. 70-10-CE (C&PLSEL-68), August 1969 (AD 860170).

Journal Articles

59. BARRON, E. R., and A. LASTNIK. Personnel armor systems. Minutes of the 11th Explosive Safety Seminar, Memphis, Tenn., Armed Services Explosive Safety Board, Washington, D. C., 1:363-366 (1969).
60. MACNAIR, R. N., and J. T. STAPLER. Investigation of intumescent fabric coatings for protection against thermal radiation and flame. Amer. Dyest. Rep., 59(3):27-36 (1970).
61. MILES, T. D. Report of the research committee on progress during 1969. Proc. Third Annual Meeting, Information Council on Fabric Flammability, pp. 19-47 (1970).
62. POPE, C. J., and L. I. WEINER. How fabrics wear in laundering. Textile Chemist and Colorist, 1(15):314-322 (1969).

CLOTHING AND PERSONAL LIFE SUPPORT EQUIPMENT LABORATORY

Journal Articles (continued)

63. POPE, C. J., and E. P. PARKER. Testing abrasion resistance by the sand blast method. Textile Chemist and Colorist, 1(16):345-353 (1969).
64. PROSSER, R. A. The adsorption and absorption of water vapor by polyethylene terephthalate. J. Appl. Polym. Sci., 14(4):989-998 (1970).
65. SCHNEIDER, N. S., A. L. ALLEN, and L. V. DUSABLON. Water vapor permeability of ultrathin polyurethan films. J. Macromolec. Sci. - Phys., B3(4):767-776 (1969).
66. _____, L. V. DUSABLON, E. W. SNELL, and R. A. PROSSER. Water vapor transport in structurally varied polyurethans. J. Macromolec. Sci. - Phys. B3(4):623-644 (1969).
67. WEINER, L. I. Federal test method standard 191. Fabricoater 4(2): 3-4 (1970).
68. _____, and J. SHAH. Insulating characteristics of battings. Textile Chemist and Colorist, 1(14):301-306 (1969).
69. _____ Wear resistance of cotton textiles. Proc. First International Symposium on Cotton Textile Research, Institut Textile de France, p. 433 (1970).

Technical Papers

70. BARRON, E. R., and A. LASTNIK. Personnel armor systems. Explosives Safety Seminar, Armed Services Explosives Safety Board, Memphis, Tenn., 9-10 September 1969.
71. FREDERICK, E. B. Seams research, Framingham State College, Framingham, Mass., 15 April 1970.
72. KENNEDY, S. J. Clothing and equipment support to our troops in Vietnam. Chamber of Commerce, Bristol, Tenn., 30 July 1969.
73. _____ Fiber marketing in our present-day world. Annual Meeting, Texas Sheep and Goat Raisers Association, Austin, Tex., 15 July 1969.

CLOTHING AND PERSONAL LIFE SUPPORT EQUIPMENT LABORATORY

Technical Papers (continued)

74. KENNEDY, S. J. Clothing and equipment support to our troops in Vietnam. Elastomers Laboratory, E. I. DuPont de Nemours Co., Inc., Wilmington, Del., 14 August 1969.
75. _____ Remarks. AATT Seminar on Implications of Progress in Science and Technology on Textile Marketing, American Association for Textile Technology, Inc., New York, N. Y., 3 November 1969.
76. _____ Principles of the functional design of clothing. New York State College of Human Ecology, Cornell University, Ithaca, N. Y., 13 November 1969.
77. _____ Recent developments in military textiles. Philadelphia College of Textiles and Science, Philadelphia, Pa., 24 November 1969.
78. _____ Remarks on The Role of the Textile Technologist. AATT Annual Meeting upon receiving the AATT Bronze Medal Award, American Association for Textile Technology, Inc., New York, N. Y., 4 February 1970.
79. _____ Women's military uniforms. U. S. Army Women's Army Corps Center, Ft. McClellan, Ala., 17 February 1970.
80. LAIBLE, R. C., J. SULTAN, and F. J. McGARRY. Microstructure of two-phase polymers. ACS Meeting, Division of Coatings and Plastics, Toronto, Canada, 28 May 1970.
81. MA, Y. H., L. W. RUST, R. E. LARSEN, and L. A. SPANO. Mathematical simulation of simultaneous energy and mass transfer process in a clothing-airspace-skin system. 1970 Summer Computer Simulation Conference, Association for Computing Machinery, Simulations Councils, Inc., SHARE, Denver, Colo., 10-12 June 1970.
82. MILES, T. D. Progress during 1969 in research on flammability of textiles. Information Council on Fabric Flammability, New York, N. Y., 4 December 1969.
83. _____ Testing flame-resistant textiles. New England Regional Meeting, AATCC, Portsmouth, N. H., 16 May 1970.

CLOTHING AND PERSONAL LIFE SUPPORT EQUIPMENT LABORATORY

Technical Papers (continued)

84. MILES, T. D. Flammability and flame resistance of textiles. Textiles 70-74 Seminar, Kent State University, Kent, Ohio, 26 June 1970.
85. RAMSLEY, A. O. Modern countersurveillance in combat clothing. Army Science Conference, West Point, N. Y., 16-19 June 1970.
86. RIZZO, F. J. Future military requirements for textiles. New England Regional Meeting, AATCC, Portsmouth, N. H., 15-16 May 1970.
87. SELIGSBERGER, L. A practical approach to the determination of water vapor transmission and absorption. 11th Conference, International Union of Leather Chemists' Societies, Imperial College, London, 9 September 1969.
88. _____ A procedure for obtaining a rapid equilibrium between leather samples and various levels of atmospheric moisture. 66th Annual Meeting, American Leather Chemists Association, Lake Placid, N. Y., 22 June 1970.
89. SPANO, L. A. Conditioned aircrewmens clothing systems. Seventh Annual Symposium, Survival and Flight Equipment Association, Las Vegas, Nev., 27-30 October 1969.
90. _____, and V. D. IACONO. Microclimate-controlled (thermal-equilibrium) clothing systems for military applications. Army Science Conference, West Point, N. Y., 15-19 June 1970.
91. WHITE, R. M. Changes in body size in American men. Third Annual Technical Conference, Apparel Research Foundation, Washington, D. C., 15 October 1969.

Other Publications

92. KENNEDY, S. J., H. J. McISAAC, and L. I. WEINER. Research on clothing and textile specifications. NLABS Pamphlet, December 1969.

EARTH SCIENCES LABORATORY

Technical Reports

93. DODD, A. V. Areal and temporal occurrence of high dew points and associated temperatures. 70-4-ES (ES-49), August 1969 (AD 707919).
94. FRODIGH, R. J., A. D. HASTINGS, JR., T. E. NIEDRINGHAUS, and J. M. PLANALP. Mainland Southeast Asia: a folio of thematic maps for military users. 70-21-ES (ES-51), November 1969.
95. LABADAN, R. M., and B. V. TRAVIS. Arthropods of medical importance in Europe (exclusive of the European U.S.S.R.). Cornell University, Contract No. DA19-129-AMC-644(N). 70-49-ES (ES-55), June 1970.
96. OHMAN, H. L. Analogs of Canal Zone temperature in Southeast Asia: an atlas of temperature frequencies. 70-33-ES (ES-54), June 1970.
97. PAYLORE, P., and W. G. MCGINNIES. Desert research: selected references 1965-1968. University of Arizona, Contract No. DAAG17-67-C-0199. 70-24-ES (ES-52), December 1969 (AD 703884).
98. RIORDAN, P. Weather extremes around the world. 70-45-ES (ES-53), January 1970 (AD 707920).
99. SIMPSON, E. S. Contributions on the status of arid-lands research: ground water in Australia. University of Arizona, Contract No. DAAG17-67-C-0199. 70-5-ES (ES-50), August 1969 (AD 695631).

Journal Articles

100. DABBERDT, W. F. A selective climatology of Plateau Station, Antarctica. J. Appl. Meteorol., 9(2):311-315 (1970).
101. _____, and H. H. LETTAU. Variangular wind spirals. Boundary-Layer Meteorology, 1(1):64-79 (1970).
102. THOMPSON, W. F. Airmobile warfare in the mountains. Military Review, 50(7):57-62 (1970).

EARTH SCIENCES LABORATORY

Technical Papers

103. BRIERLY, W. B. AR 70-38, research, development, test and evaluation of materiel for extreme climatic conditions, 5 May 1969. 18th Conference on Prevention of Microbiological Deterioration of Military Materiel. U. S. Army Natick Laboratories, Natick, Mass., 18-20 November 1969.
104. _____ Status and background of military design and testing documents. Education Panel Meeting, Annual Meeting, Institute of Environmental Sciences, Anaheim, Calif., and Test and Evaluation Directorate, Yuma Proving Ground, Ariz., April 1969.
105. DABBERDT, W. F. Climatology of the Antarctic Plateau. IUGG-IAMAP-AMS Symposium on Planetary Boundary Layers, Boulder, Colo., 18-20 March 1970.
106. _____ Possible microclimatic modification of the Rajputana Desert region. Department of Earth and Atmospheric Sciences, St. Louis University, St. Louis, Mo., 9 March 1970.
107. PLANALP, J. M. Thermal environmental relationships of diet in North India. Annual Meeting, Northeastern Anthropological Association, Ottawa, Canada, 8 May 1970.
108. ROBISON, W. C. A geographic rationale for vegetation classification. Boston University Department of Geography, Boston, Mass., 9 April 1970.
109. WONG, E. Some meteorological aspects of air pollution and city planning. Xavier University School of Engineering, Cagayan de Oro, Philippines, 12 March 1970.

Books

110. PLANALP, J. M. Prestige ranking as a method in a North Indian village. In Themes in Culture and Other Essays, M. D. Zamora (ed.), U. of Philippines Press.
111. ROBISON, W. C. International perspectives in nature conservation. In The Last of Lands, Jacaranda Press, Milton, Qld., (1969).
112. THOMPSON, W. F. On the evaluation of mountain terrain. In Terrain Evaluation, F. Betz (ed.), Plenum Press, N. Y.

EARTH SCIENCES LABORATORY

Other Publications

113. CHAMBERS, J. V. Mesoscale precipitation in the Gatun Drainage Basin of Panama: Precipitation characteristics, spatial and temporal patterns. Ph.D. Dissertation, University of Bristol, Bristol, England, January 1970.
114. _____ Study of meso-scale precipitation variability in Panama. Abstract in Water Resources Research Catalog, Vol. 5, Office of Water Resources Research, U. S. Dept. of Interior, Washington, D. C., December 1969.
115. DABBERDT, W. F. Wind and turbulence structure in the boundary layer over the Antarctic Plateau. Ph.D. Dissertation, University of Wisconsin, Madison, Wisc., August 1969.

FOOD LABORATORY

Technical Reports

116. BLODGETT, J. Maximum variety from feeding unit of low weight and bulk. The Pillsbury Co., Contract No. DAAG17-68-C-0148. 70-29-FL (FL-103), November 1969 (AD 702959).
117. EL-BISI, H. M., and E. M. POWERS. The microbiological wholesomeness of space foods. 70-41-FL (FL-93), June 1969 (AD 701861).
118. FITZMAURICE, W. J., R. L. HELMER, and J. M. TUOMY. Compressed freeze-dried meat balls and pork sausage links. 70-27-FL (FL-104), October 1969 (AD 697748).
119. GORFIEN, H., A. R. RAHMAN, G. R. TAYLOR, and D. E. WESTCOTT. Controlled atmosphere system laboratory studies on tomatoes. 70-58-FL (FL-108), February 1970 (AD 705588).
120. _____, A. R. RAHMAN, K. R. JOHNSON, and E. E. ANDERSON. Effects of a controlled atmosphere system on the storage life of lettuce. Part I: Laboratory Tests. 70-23-FL (FL-99), October 1969 (AD 861316).
121. _____, A. R. RAHMAN, and D. E. WESTCOTT. Effects of a controlled atmosphere system on the storage life of lettuce. Part II: Field test. 70-26-FL (FL-100), October 1969 (AD 861545).*
122. HELMER, R. L., and J. M. TUOMY. Compressed beef jerky. 70-15-FL (FL-98), September 1969 (AD 697746).
123. HOLLIS, F., M. KAPLOW, J. HALIK, and H. NORDSTROM. Parameters for moisture content for stabilization of food products. Phase II. General Foods Corp., Contract No. DAAG17-67-C-0098. 70-12-FL (FL-92), August 1969 (AD 701015).
124. MACKENZIE, A. P., and B. J. LUYET. Recovery of compressed dehydrated foods. American Foundation for Biological Research, Contract No. DAAG17-67-C-0126. 70-16-FL (FL-90), July 1969 (AD 703901).
125. MAUDERLY, J. L., and J. A. LAWRENCE. The effect of dietary fat level on postprandial gastrointestinal blood flow patterns. 70-9-FL (FL-95), August 1969 (AD 693773).
126. MURRMANN, R. P., R. W. WINTERS, and T. G. MARTIN, III. Gamma-ray spectra of resonance neutron irradiated earth materials. USA CRREL Research Report 289, March 1970.

FOOD LABORATORY

Technical Reports (continued)

127. RAHMAN, A. R., G. R. TAYLOR, K. MILLER, and K. R. JOHNSON. Factors affecting the quality of freeze-dried corn. 70-17-FL (FL-96), September 1969 (AD 693774).
128. _____, G. R. TAYLOR, K. MILLER, and K. R. JOHNSON. Factors affecting the quality of freeze-dried green beans. 70-20-FL (FL-97), September 1969 (AD 694354).
129. _____, K. MILLER, and G. SCHAFER. Factors affecting the quality of freeze-dried peas. 70-8-FL (FL-94), August 1969 (AD 692301).
130. _____, and K. R. JOHNSON. Quality of dehydrated lima beans as influenced by processing variables and storage temperatures. 70-35-FL (FL-101), November 1969 (AD 697749).
131. _____, G. SCHAFER, G. R. TAYLOR, and D. E. WESTCOTT. Storage life of lettuce as affected by controlled atmosphere system. 70-48-FL (FL-106), January 1970 (AD 703122).
132. _____, G. SCHAFER, G. R. TAYLOR, and D. E. WESTCOTT. Studies on reversible compression of dehydrated vegetables. 70-36-FL (FL-102), November 1969 (AD 698457).
133. _____, G. R. TAYLOR, G. SCHAFER, and D. E. WESTCOTT. Studies on reversible compression of freeze-dried RTP cherries and blueberries. 70-52-FL (FL-105), February 1970 (AD 704340).
134. THOMAS, M. H., and D. E. SHERMAN. Effect of freeze-thaw cycling on the vitamin content of the Meal, Ready-to-Eat, Individual. 69-86-FL (FL-91), June 1969 (AD 695642).
135. TUOMY, J. M. Freeze-drying of foods for the armed services. 70-43-FL (FL-107), February 1970 (AD 706900).
136. _____, L. C. HINNERGARDT, and R. L. HELMER. Response of cooked freeze-dried combination meat items to oxygen. 70-64-FL (FL-110), May 1970 (AD 707921).

FOOD LABORATORY

Journal Articles

137. ANELLIS, A., D. BERKOWITZ, C. JARBOE, and H. M. EL-BISI. Radiation sterilization of prototype military foods. III. Pork loin. *Appl. Microbiol.*, 18:604-611 (1969).
138. BROCKMANN, M. C. Compaction of military foods. *Activities Report*, 21(2):83-87 (1969).
139. _____ Minimizing weight and bulk. *Proc. NAS-NRC Symposium Feeding the Military Man*, pp. 99-104 (1970).
140. FENG, P. Y., A. BRYNJOLFSSON, J. W. HALLIDAY, and R. D. JARRETT. High-intensity radiolysis of aqueous ferrous sulfate-cupric sulfate-sulfuric acid solutions. *J. Phys. Chem.*, 74(6):1221-1227 (1970).
141. GHOSE, T. K. Continuous enzymatic saccharification of cellulose with culture filtrates of *Trichoderma viride* QM 6a. *Biotechnol. Bioeng.*, 11(2):239-261 (1969).
142. _____ Foods of the future. *Process Biochem.*, 4(12):43 (1969).
143. HARRIS, N. E., and R.J. VILECE. Correlation of refractometer values with dry matter content of onions before dehydration. *Food Product Development*, 4(2):37, 40, (1970).
144. HOLLENDER, H. A., and M. V. KLICKA. Feeding man in space. *The Review*, 49(4):15-16, 18, 124, 127-129 (1970).
145. JOSEPHSON, E. S. Nuclear applications in the food industry. *Proc. 44th Annual Conference of American Industrial Development Council*, pp. 134-147 (1969).
146. KAPSALIS, J. G., B. DRAKE, and B. JOHANSSON. Textural properties of dehydrated foods. Relationships with thermodynamics of water vapor sorption. *J. Texture Studies*, 1(3): (1970).
147. KENYON, E. M., P. C. RINALDI, and J. W. GOULD. A microwave feeding system for extended space missions. *J. Microwave Power* 4(4): 258-272 (1969).
148. KLICKA, M. V. Convenience - keynote of the future. *J. Home Econ.*, 61(9):707-716 (1969).
149. _____ New foods for a new decade. *School Lunch J.*, pp. 12-18 (1970).

FOOD LABORATORY

Journal Articles (continued)

150. KLIČKA, M. V. Space food development: a review. *Activities Report*, 22(1):63-78 (1970).
151. _____ Space food development: a review. *Proc. NAS-NRC Symposium Feeding the Military Man*, pp. 63-78 (1970).
152. LEARSON, R. J., L. S. RONSEVALLI, B. W. SPRACKLIN, and F. HEILIGMAN. Process criteria for producing radiation sterilized fish products. *Food Technol.*, 38(8):85-91 (1969).
153. MEHRLICH, F. P. Foreword. *Proc. NAS-NRC Symposium Feeding the Military Man*, p. iii (1970).
154. _____ The symposium in summary. *Proc. NAS-NRC Symposium Feeding the Military Man*, pp. vii-x (1970).
155. SINSKEY, T. J., and G. J. SILVERMAN. Characterization of injury incurred by *Escherichia coli* upon freeze drying. *J. Bacteriol.*, 101(2):429-437 (1970).
156. TAUB, I. A., and H. A. GILLIS. Optical detection of transient solvated squalane. *J. Amer. Chem. Soc.*, 91(23):6507-6508 (1969).
157. THOMAS, M. H., and E. S. JOSEPHSON. Radiation preservation of foods and its effect on nutrients. *Science Teacher*, 37(3):59-63 (1970).
158. TUOMY, J. M., L. C. HINNERGARDT, and R. L. HELMER. Effect of oxygen uptake on quality of cooked, freeze-dried combination foods. *J. Agri. Food Chem.*, 17(6):1360-1363 (1969).

Technical Papers

159. AGARWAL, S. R., F. HEILIGMAN, E. M. POWERS, and E. WIERBICKI. Comparison of pre-cooked irradiated lamb and chicken with and without partial dehydration. *Institute of Food Technologists*, San Francisco, Calif., 27 May 1970.
160. ANELLIS, A., D. BERKOWITZ, and D. KEMPER. Comparative resistance of bacteria to low-temperature gamma irradiation. I. Nonsporogenic bacteria. *American Society for Microbiology*, Boston, Mass. 29 April 1970.

FOOD LABORATORY

Technical Papers (continued)

161. BAKER, L. J. Preservation of foods by irradiation. Simmons College, Boston, Mass., 1 October 1969; 4 May 1970.
162. BISHOV, S. J., A. S. HENICK, and J. W. GIFFEE. Quality and stability of some freeze-dried foods in "zero" oxygen. Institute of Food Technologists, San Francisco, Calif., 24 May 1970.
163. BROCKMANN, M. C. Water activity as it relates to meat. Meat Industry Research Conference, Chicago, Ill., 26-27 March 1970.
164. CALDWELL, D. M., G. MALY, J. L. MAUDERLY, and Z. POBER. Effects of caecumectomy on growth parameters in young male rats. Federation of American Societies of Experimental Biology, Atlantic City, N. J., 13 April 1970.
165. COHEN, J. S., and M. A. WALL. A method for calculating the average sterilizing value in cylindrical containers. American Society of Agricultural Engineers, Chicago, Ill., 11 December 1969.
166. DRIVER, M., F. HEILIGMAN, J. G. KAPSALIS, and E. WIERBICKI. Color quality of irradiated canned ham as determined by reflectance methods. Institute of Food Technologists, San Francisco, Calif., 24 May 1970.
167. GERMAINE, G. R., B. COTTMAN, and B. D. CHURCH. Gamma radiation resistance of Clostridium botulinum. 62A spores. Contract No. DAAG17-68-C-0094. American Society for Microbiology, Boston, Mass., 30 April 1970.
168. GHOSE, T. K., and J. KOSTICK. A model for continuous enzymatic saccharification of cellulose with simultaneous removal of glucose syrup. American Chemical Society, New York, N. Y., 8 September 1969.
169. HARRIS, N. E. Space foods. Braintree Parent Teachers Association, Braintree, Mass., 7 April 1970.
170. HEILIGMAN, F. Radiation preservation of food. Subsistence School, Camp Lejeune, N. C., 18 November 1969.
171. HOLLENDER, H. A. Space feeding. Sherborn Lions Club, Medfield, Mass., 9 December 1969.

FOOD LABORATORY

Technical Papers (continued)

172. HOLLENDER, H. A. Decision making for military rations. New York Section, Institute of Food Technologists, New York, N. Y., 20 January 1970.
173. _____ Rations and space food. Sherborn Grange, Sherborn, Mass., 6 February 1970.
174. _____ Technology of thermostabilized wet meat products developed for space flight use. Research and Development Associates for Food and Packaging Systems, Inc., Chicago, Ill., 14 April 1970.
175. JARBOE, J. K., and A. F. MABROUK. Water-soluble flavor precursors of beef. Free amino acids, sugars and organic acids in aqueous beef extracts. American Chemical Society, New York, N. Y., September 1969.
176. JOSEPHSON, E. S. Radiation preservation. Workshop in New Developments in Foods and Nutrition. Syracuse University, Syracuse, N. Y., 10 July 1969.
177. _____ Food irradiation technology and techniques. Second International Training Course, International Atomic Energy Agency, Massachusetts Institute of Technology, Cambridge, Mass., 14-15 July 1969.
178. _____ High dose radiation and its potential contribution to relief of malnutrition. International Atomic Energy Agency, Vienna, Austria, 25 November 1969.
179. _____ Implications to Iran of radiation preservation of foods. Institute of Radiation Preservation of Foods; Institute of Standards and Industrial Research of Iran, Karadj, Iran, 27 November 1969.
180. _____ The status of the radiation preservation of foods process and the potential of this process to Iran. Ministry of Economy, Tehran, Iran, 29 November 1969.
181. _____ Recent progress in preserving foods by ionizing radiation. Bhabha Atomic Research Center, Trombay, Bombay, India, 20 December 1969.

FOOD LABORATORY

Technical Papers (continued)

182. JOSEPHSON, E. S. Status of radiation sterilization of food. Israel Atomic Energy Commission, Tel Aviv, Israel, 30 December 1969.
183. _____ Radiation preservation of food. Nutmeg Section, Institute of Food Technologists, Bridgeport, Conn., 27 January 1970.
184. _____ Radiation preservation of food. Architects-Engineer Lodge, B'nai B'rith, Brookline, Mass., 29 March 1970.
185. _____ Preservation of foods by ionizing radiation: status, problems and prospects. University of Rhode Island, Kingston, R. I., 1 April 1970.
186. _____ Preserving foods by ionizing radiation. Crytal gazing into the homes of tomorrow. Special Homemakers' Day Program, Worcester County Extension Service, Millbury, Mass., 25 June 1970.
187. KAPSALIS, J. G. Relationships between water activity and textural properties of low- and intermediate-moisture foods. Symposium: Highlights in Food Science, Michigan State University, East Lansing, Mich., 23-25 March 1970.
188. _____, J. E. WALKER, JR., and M. WOLF. New foods for military use. A physico-chemical approach to research and development. Army Science Conference, West Point, N. Y., 16-19 June 1970.
189. _____, M. WOLF, and J. E. WALKER, JR. The physico-chemical approach to the study of the mechanical properties of dehydrated protein food systems. International Symposium on Proteins, Aberdeen, Scotland, 8-12 September 1969.
190. KENYON, E. M., D. E. WESTCOTT, P. LACASSE, and J. W. GOULD. A system for the continuous processing of food pouches using microwave energy. Institute of Food Technologists, San Francisco, Calif., 24 May 1970.
191. KLIKA, M. V. Army rations. Walter Reed Army Institute of Research, Washington, D. C., 22 July 1970; 5 March 1970.
192. _____ Development of space foods. Western Electric, North Andover, Mass., 3 September 1969.

FOOD LABORATORY

Technical Papers (continued)

193. KLIČKA, M. V. Space food development: A review. Third Nutrition Symposium, Walter Reed Army Institute of Research, Washington, D. C., 5 March 1970.
194. _____ Combat feeding systems and operational rations. U. S. Army Quartermaster School, Fort Lee, Va., 5 November 1969; 17 June 1970.
195. _____ Lunch among the stars. New York State School Food Service Association, Inc., Kiamesha Lake, N. Y., 1-2 April 1970.
196. _____ Foods for astronauts. Madison College, Harrisonburg, Va., 11 October 1969; Harvard Business School Wives Club, Cambridge, Mass., 28 October 1969; Newton South High School, Newton Centre, Mass., 28 October 1969; Old South Church, Boston, Mass., 2 November 1969; Framingham Grange, Framingham, Mass., 10 November 1969; Brighton Public Health, Brighton, Mass., 21 November 1969; Fairport Central School, Fairport, N. Y., 18 February 1970.
197. _____ Space feeding. Westover Massachusetts Branch, Service Executives Association, Westover Field, Chicopee, Mass., 15 September 1969; International Congress of Dietetics, Lying-In Hospital, Boston, Mass., 16 September 1969; NLABS Women's Club, Natick, Mass., 8 October 1969; Dedham Rotary Club, Boston, Mass., 16 October 1969; General Electric-Boston Edison Food Service Executives, 21 October 1969; Amos Mills Chapter DAR, Wellesley, Mass., 11 December 1969; Framingham State College, Framingham, Mass., 27 October 1969; Westboro Rotary Club, Westboro, Mass., 23 January 1970; VA Hospital, Bedford, Mass., 2 February 1970; Massachusetts School Food Service Association, Brookline Chapter, Brookline, Mass., 5 February 1970; Newton Knights of Columbus, Newton, Mass., 18 March 1970; PTA Meeting, Frederick A. Cleveland School, Norwood, Mass., 24 March 1970; Spring Meeting, Women's Guild of Brockton Hospital, Brockton, Mass., 7 April 1970; Junior High Council, Boston Public Schools, Jamaica Plain, Mass., 28 April 1970; Foods and Nutrition Department, University of Connecticut, Storrs, Conn., 28 April 1970; Central Junior High School, Quincy, Mass., 12 May 1970; Copley Business and Professional Women's Club, Boston, Mass., 21 May 1970; Worcester Section, American Society of Mechanical Engineers, Worcester, Mass., 23 May 1970; East Bridgewater Intermediate School, East Bridgewater, Mass., 1 June 1970.

FOOD LABORATORY

Technical Papers (continued)

198. LEE, F. H. Recipe service, testing and acceptance. Garland Junior College, 22 April 1970; Dietetic Interns, Massachusetts General Hospital, 23 April 1970; Dietetic Interns, Beth Israel and Peter Bent Brigham Hospitals, 14 May 1970 (all presented at NLABS).
199. MARKUS, Z. Inhibition of Enterotoxin B production by nontoxigenic variants of Staphylococcus aureus S-6. American Society for Microbiology, Boston, Mass., 30 April 1970.
200. McNUTT, J. Recipe service. Framingham State College, 7 May 1970 (presented at NLABS).
201. _____ New foods. New England District Meeting, American Society of Testing and Materials, North Andover, Mass., 23 April 1970.
202. MEHRLICH, F. P. Adventures in food. Waltham Congregational Church, Men's Club, Waltham, Mass., 17 November 1969; Wellesley Women's Club, Wellesley, Mass., 26 February 1970.
203. POBER, Z., and P. SCAGNELLI. Effect of local anesthesia of the gastrointestinal tract on food intake. Federation of American Societies of Experimental Biology, Atlantic City, N. J., 14 April 1970.
204. PORTER, W. L., L. A. LEVASSEUR, and A. S. HENICK. An addition compound of tocopherol and linoleic acid. American Oil Chemists Society, Minneapolis, Minn., 7-9 October 1969.
205. POWERS, E. M., C. AY, and D. B. ROWLEY. Bacteriology of dehydrated space foods. American Society for Microbiology, Boston, Mass., 29 April 1970.
206. PRELL, P. A. Sensory testing of military foods. Cornell University, 31 March 1970; Garland Junior College, 22 April 1970; Framingham State College, 7 May 1970 (all presented at NLABS).
207. RAHMAN, A. R. Recent advances in food preservation. Central Massachusetts Police Association, Ashland, Mass., 12 November 1969.
208. _____ Recent advances in food research. Oregon State University, Corvallis, Ore., 25 September 1969; Grace Congregational Church, Framingham, Mass., 6 October 1969.

FOOD LABORATORY

Technical Papers (continued)

209. RAHMAN, A. R. Combat feeding systems. Current advances in food research. Fort Lee Subsistence Officer Class 70-1, Fort Lee, Va., 4-5 November 1969.
210. _____ Recent advances in food technology. Wellesley Rotary Club, Wellesley, Mass., 14 April 1970.
211. _____, W. L. HENNING, and D. E. WESTCOTT. Histological and physical changes during processing of freeze-dried and compressed carrots. Institute of Food Technologists, San Francisco, Calif., 24 May 1970.
212. ROWLEY, D. B., F. FEEHERRY, and E. JONES. Germination of spores of Clostridium botulinum 62A in a chemically defined medium. American Society for Microbiology, Boston, Mass., 29 April 1970.
213. _____, and F. FEEHERRY. Clostridium botulinum 62A spores: production and germination. Swedish Institute for Food Preservation Research, Goteborg, Sweden, 17 June 1970.
214. SHULTS, G. W., and E. WIERBICKI. Effect of condensed phosphates on pH, swelling, and water holding capacity of meats. Institute of Food Technologists, San Francisco, Calif., 25 May 1970.
215. SILVERMAN, G. J. The survival of microorganisms in ultra-high vacuum. Boston Bacteriology Club, Boston, Mass., 4 December 1969.
216. _____ The lethality of the deep space environment. Northeastern University, Boston, Mass., 15 January 1970.
217. _____, and M. K. COHEN. The spoilage potential of the microflora of dehydrated raw beef. American Society for Microbiology, Boston, Mass., 29 April 1970.
218. TAUB, I. A. Transient solvated electrons in pulse-irradiated ice and viscous polar and non-polar liquids. Gordon Research Conference on Radiation Chemistry, New Hampton, N. H., 13 July 1969.
219. TUOMY, J. M. Operational rations. Attleboro Rotary Club, Attleboro, Mass., 3 September 1969; Attleboro Lions Club, Attleboro, Mass., 28 October 1969; Norton Lions Club, Norton, Mass., 7 January 1970.

FOOD LABORATORY

Technical Papers (continued)

- 220. WHITE, V. M. Rations. Dietetic Interns, Massachusetts General Hospital, 23 April 1970; Massachusetts State Dietitians, 12 May 1970; Dietetic Interns, Beth Israel Hospital and Peter Bent Brigham Hospital, 14 May 1970 (all presented at NLABS).
- 221. WILLIAMS, R., M. V. KLIKA, and F. H. LEE. Research and development of foods for U. S. armed forces feeding. Fifth International Congress of Dietetics, Washington, D. C., 8 September 1969.
- 222. WOLF, M., J. E. WALKER, JR., and J. G. KAPSALIS. Water vapor sorption hysteresis in relation to dehydrated food quality. American Chemical Society, Toronto, Canada, 24-29 May 1970.

Book Chapters

- 223. BROCKMANN, M. C. Freeze drying. In The History of Penicillin Production, Chemical Eng. Prog. Symposium Series 66, v. 100, American Institute of Chemical Engineers, New York, N. Y., pp. 51-61 (1970).
- 224. GHOSE, T. K., and J. KOSTICK. Enzymatic saccharification of cellulose in semi and continuously agitated systems. In Advances in Chemistry Series 95, Cellulases and Their Applications, American Chemical Society, Washington, D. C., pp. 415-446 (1969).
- 225. LEWICKI, P. R., and G. J. SILVERMAN. Mechanisms concerned in the repair and recovery of sublethally impaired cells occurring in foods. In The Microbiology of Dried Foods, pp. 106-134 (1970).
- 226. MANDELS, M. and J. WEBER. The production of cellulases. In Advances in Chemistry Series 95, Cellulases and Their Applications, American Chemical Society, Washington, D. C., pp. 391-414 (1969).
- 227. ROWE, J. A., and G. J. SILVERMAN. The absorption-desorption of water by bacterial spores and its relation to dry heat resistance. In Developments in Industrial Microbiology, 11:311-326 (1969).

Other Publications

- 228. KENYON, E. M. Microwave power engineering, vol. 2. Applications. E. C. Okress, Academic Press, 1969. Book review in J. Microwave Power, 4(2):105 (1969).

GENERAL EQUIPMENT AND PACKAGING LABORATORY

Technical Reports

229. DIETZ, A. E., R. B. PROFFITT, R. S. CHABOT, E. L. MOAK, and C. J. MONEGO. Wind tunnel tests and analyses for ground-mounted, air-supported structures (Revised). Hayes International Corporation, Contract No. DA19-129-AMC-953 (N). 70-7-GP, July 1969 (AD 701203).
230. FOX, M., and A. L. DUNGAN. The SPEED field feeding system. 70-11-GP, August 1969 (AD 700989).
231. GOLDSTEIN, S. R. An analytical and experimental study to develop a nonmechanical system to induce resonance in a rod drill for frozen soil. Foster-Miller Associates, Inc., Contract No. DAAG-17-68-C-0028. 70-18-GP, June 1969 (AD 866898).*
232. PRIFTI, J. K. Evaluation of British 150-man cookset. 70-60-GP, August 1969 (AD 869797).*
233. SCHULZ, G. L., and R. T. MANSUR. Sealing through contaminated pouch surfaces. 69-76-GP, May 1969 (AD 692864).

Journal Articles

234. CAMPBELL, R. J. Food service equipment for feeding military forces. The Review, 49(2):65-66 (1969).
235. DECAREAU, R. V. Editorial. Microwave Energy Applications Newsletter, 2(5):2, 6 (1969).
236. _____ Keep your oven clean. Microwave Energy Applications Newsletter, 3(1):13 (1970).
237. _____ Lab usage of microwave ovens. Microwave Energy Applications Newsletter, 3(1):12-13 (1970).
238. _____ Microwave baking applications update. Microwave Energy Applications Newsletter, 3(1):3-5 (1970).
239. _____ Microwave blanching review. Microwave Energy Applications Newsletter, 3(1):6-7 (1970).
240. _____ Microwave energy in food processing applications. Critical Reviews in Food Technology. 1(2):199-224 (1970).

GENERAL EQUIPMENT AND PACKAGING LABORATORY

Journal Articles (continued)

241. DECAREAU, R. V. Microwave freeze-drying update. Microwave Energy Applications Newsletter, 2(5):14 (1969).
242. _____ Microwave: key to fast food service. Microwave Energy Applications Newsletter, 3(2):2 (1970).
243. _____ Microwave oven hazards are exaggerated. Microwave Energy Applications Newsletter, 3(1):2, 14 (1970).
244. _____ Microwaves in Sweden - A trip report. Microwave Energy Applications Newsletter, 2(4):2, 14-16 (1969).
245. _____ Status of microwave oven standards. Microwave Energy Applications Newsletter, 2(6):3-5 (1969).
246. _____ The year in review. Microwave Energy Applications Newsletter, 2(6):2, 14 (1969).
247. HU, K. H., and J. D. BREYER. Removing oxygen from a package by gas displacement. Food Technol., 24(6):705-709 (1970).
248. LEVINE, A. S. Packaging for microwave cooking. Microwave Energy Applications Newsletter, 3(2):3-7 (1970).
249. NEBESKY, E. A., and D. J. PALESE. Some thoughts on packaging freeze-dried foods. Good Packaging.
250. _____, and D. J. PALESE. Some thoughts on packaging freeze-dried foods. Package Engineering.
251. _____, and D. J. PALESE. Some thoughts on packaging freeze-dried foods. Packascope.
252. O'SULLIVAN, D. J., JR. NLABS shipping hazards recorder - status and future plans. Shock and Vibration Bulletin, 39(6):19-30 (1969).
253. RUBINATE, F. J. New developments in food packaging. The Review, 49(3):148-150 (1969).
254. _____ Solving military packaging problems. The Review, 49(2):62, 65 (1969).

GENERAL EQUIPMENT AND PACKAGING LABORATORY

Journal Articles (continued)

- 255. SCHULZ, G. L. Sealing of flexible packages. Paper, Films and Foil Converter, 43(11):76, 78, 112, 114 (1969).
- 256. _____ Sealing technique ignores contaminants. Activities Report, 21(2):97-103 (1969).

Technical Papers

- 257. AKREP, J. P. Review of new specifications set in last year. New England Chapter, Technical Association of the Pulp and Paper Industry, Framingham, Mass., 16 March 1970.
- 258. ANGELINI, P., J. J. KILLORAN, and S. R. AGARWAL. Volatile compounds produced from irradiation of packaging films. Institute of Food Technologists, San Francisco, Calif., 24 May 1970.
- 259. HU, K. H., and J. D. LOCONTI. Time-temperature indicating systems. Army Science Conference, West Point, N. Y., 16-19 June 1970.
- 260. LAMPI, R. A. Packaging developments at Natick Laboratories. Spring Meeting, Packaging, Handling and Transportability Division, American Ordnance Association, Natick, Mass., 28-29 April 1970.
- 261. McCLAINE, L. A. Instrumental developments for a packaging program. Spring Meeting, Packaging, Handling and Transportability Division, American Ordnance Association, Natick, Mass., 28-29 April 1970.
- 262. McCORMACK, M. E. Natick Laboratories development in liquid fuel combustion equipment. National Oil Fuel Institute, Atlantic City, N. J., 10 June 1970.
- 263. NEBESKY, E. A. Some new packaging developments. Institute of Food Technologists 1969-1970 Lecture Program, East Section, Hartford, Conn., 6 October 1969.
- 264. _____ Some new packaging developments. Institute of Food Technologists 1970-1971 Lecture Program, New York Chapter, New York, N. Y., 14 April 1970.

GENERAL EQUIPMENT AND PACKAGING LABORATORY

Technical Papers (continued)

- 265. NEBESKY, E. A., and D. J. PALESE. Some thoughts on packaging freeze-dried foods. Western Packaging Association Meeting, Los Angeles, Calif., 4 February 1970.
- 266. _____, and D. J. PALESE. Some thoughts on packaging freeze-dried foods. Western Packaging Association Meeting, San Francisco, Calif., 5 February 1970.
- 267. RUBINATE, F. J. Influence of the environment on corrosion. Seminar on Packaging Transportation Environment - Its Measurement and Protective Systems, University of Wisconsin, Madison, Wisc., 17-18 March 1970.
- 268. _____ New developments in food packaging. Packaging and Handling Seminar, Defense Supply Agency Annual Convention, Washington, D. C., 13 October 1969.
- 269. SCHULZ, G. L. Sealing of flexible packages. Packaging Institute Meeting, New York, N. Y., 6 October 1969.

Other Publications

- 270. LAMPI, R. A. Packaging developments at Natick Laboratories, In Report of Technical Meeting, Spring Meeting, Packaging, Handling and Transportability Division, American Ordnance Association, Natick, Mass., pp. 63-85, 28-29 April 1970.
- 271. McCLAIN, L. A. Instrumental developments for a packaging program. In Report of Technical Meeting, Spring Meeting, Packaging, Handling and Transportability Division, American Ordnance Association, Natick, Mass., pp. 138-156, 28-29 April 1970.

PIONEERING RESEARCH LABORATORY

Technical Reports

272. GREENBERGER, M., T. M. WENDT, and A. M. KAPLAN. Biodegradation of shoeboard and leatherboard footwear counter materials. 70-62-PR, April 1970.
273. HOGE, H. J. New tables for air flow. 70-50-PR, March 1970 (AD 703890).
274. MCGINNIS, J. M., R. L. BURSE, and E. R. BARRON. Evaluation of Army aircrew protective armor in Vietnam. 69-79-PR (EPT-9), June 1969 (AD 696481).
275. NEUHAUS, W., and D. M. GOLDENBERG. Vegetative reactions after olfactory stimulation. University of Erlangen-Nürnberg, Erlangen, Germany, Contract No. DA91-591-EUC-4014. Final report, July 1969.
276. PIONEERING RESEARCH LABORATORY. Proc. 18th Conference on Prevention of Microbiological Deterioration of Military Materiel. 70-61-PR, May 1970.*
277. SOKOLOFF, A. Research to determine whether adaptation of Tribolium to inadequate or toxic diets is genetically controlled. California State College, San Bernadino, Calif., Contract No. DAAG-17-68-C-0190. Final report, September 1969.
278. TEICHNER, W. H., R. WARANCH, M. LOPICCOLO, C. CAMPBELL, F. GORDON, and T. MALWALK. Mode of action of rodent repellents and attractants. Northeastern University, Boston, Mass., Contract No. DAAG-17-67-C-0070. Final report, September 1969.

Journal Articles

279. BALL, D. H., and F. W. PARRISH. Sulfonic esters of carbohydrates: Part II. Advan. Carbohyd. Chem., 24:139-197 (1969).
280. BISSETT, F. H., R. C. CLAPP, R. A. COBURN, M. G. ETTLINGER, and L. LONG, JR. Cyanogenesis in manioc: Concerning lotaustralin. Phytochemistry, 8:2235-2247 (1969).
281. BLUHM, A. L. Stable radicals by photooxidation of nitrones. J. Amer. Chem. Soc., 92(5):1444-1445 (1970).

PIONEERING RESEARCH LABORATORY

Journal Articles (continued)

282. BOECKH, J., H. SASS, and D. R. A. WHARTON. Antennal receptors: Reactions to female sex attractants in Periplaneta americana. Science, 168(3931):589 (1970).
283. BOLLENBACK, G. N., R. GOLIK, and F. W. PARRISH. Distribution of hydroxyethyl groups in hydroxyethyl starch. Cereal Chem., 46(3):304-309 (1959).
284. CHALK, R., D. H. BALL, M. A. LINTNER, and L. LONG, JR. Exocyclic acyloxy-group participation in displacement reactions of 5-O-sulphonyl-glucofuranose derivatives. Chem. Commun., 1970(4): 245-246 (1970).
285. DARBY, R. T. A viability control for mildew testing of materials and equipment in tropical chambers. Appl. Microbiol., 19(6): 1007-1008 (1970).
286. DAVIES, J. M., J. F. ROACH, and G. S. ROSS. Flash blinding of cats with a laser beam. Appl. Opt., 8(10):2147-2148 (1969).
287. _____, and B. McQUE. Measurement of depth-dose distribution in electron irradiation materials. Int. J. Appl. Radiat. Isotop., 21(5):283-304 (1970).
288. GENTILE, R. L. The role of taste preference in the eating behavior of the albino rat. Physiol. Behav., 5(3):311-316 (1970).
289. HADJLOUDIS, E., and E. HAYON. Solid state photochemical rearrangement of o-nitro-benzylidene aniline. J. Phys. Chem., 74:2224-2225 (1970).
290. HAYON, E. Optical absorption spectra of ketyl radicals and radical anions of some pyrimidines. J. Chem. Phys., 51(11):4881-4892 (1969).
291. _____ Sites of attack of hydroxyl radicals on amides in aqueous solution. J. Amer. Chem. Soc., 92:3898 (1970).
292. _____ Spectroscopic observation of the triplet-excited state of uracil in solution. J. Amer. Chem. Soc., 91:5397-5398 (1969).

PIONEERING RESEARCH LABORATORY

Journal Articles (continued)

293. HEARNS, J. F. The effect of advance cueing on the detection of targets in a visual search task. Proc. Human Factors Soc., vol. 1 (1969).
294. HEINMETS, F. A model system for the induction of an enzymatic transport system by an external substrate. Math. Biosci., 3:175-189 (1968).
295. HOFF, L. A., and R. L. GENTILE. Deprivation and the role of taste in food intake. Psychonomic Science, 17(5):277-278 (1969).
296. HOLMES, P. K., and H. S. LEVINSON. Thermal stimulation of Bacillus megaterium glucose-6-phosphate dehydrogenase. Biochem. Biophys. Res. Commun., 38(1):143-148 (1970).
297. KEENE, J. P., E. D. BLACK, and E. HAYON. A photomultiplier and amplifier circuit for kinetic spectrophotometry. Rev. Sci. Instrum., 40(9):1199-1201 (1969).
298. KIM, H. S., G. A. JEFFREY, D. PANKE, R. C. CLAPP, and L. LONG, JR. The X-ray crystallographic determination of the structure of gynocardin. Chem. Commun., 1970(6):381-383 (1970).
299. LANGMUIR, M. E., and E. HAYON. Transient species produced in the photochemistry of 5-bromouracil and its N-methyl derivatives. J. Chem. Phys., 51(11):4893-4899 (1969).
300. LEVINSON, H. S., and M. T. HYATT. Effects of temperatures on activation, germination, and outgrowth of Bacillus megaterium spores. J. Bacteriol., 101(1):58-64 (1970).
301. _____, and M. T. HYATT. Heat activation kinetics of Bacillus megaterium spores. Biochem. Biophys. Res. Commun., 37(6):909-916 (1969).
302. LINTNER, M. A., and L. LONG, JR. Sodium p- [1-(n-nonylio)ethyl] benzensulfonate. J. Amer. Chem. Soc., 46(11):601-603 (1969).
303. MONREAL, J., and E. T. REESE. The chitinase of Serratia marcescens. Can. J. Microbiol., 15(7):689-696 (1969).

PIONEERING RESEARCH LABORATORY

Journal Articles (continued)

304. MOSKOWITZ, H. R. Ratio scales of sugar sweetness. Perception and Psychophysics, 7(5):315-320 (1970).
305. _____ Sweetness and intensity of artificial sweeteners. Perception and Psychophysics, 8(1):40-42 (1970).
306. NETA, P., M. SIMIC, and E. HAYON. Pulse radiolysis of aliphatic acids in aqueous solution. Part I. Simple monocarboxylic acids. J. Phys. Chem., 73(12):4207-4213 (1969).
307. _____, M. SIMIC, and E. HAYON. Pulse radiolysis of aliphatic acids in aqueous solution. Part III. Simple amino acids. J. Phys. Chem., 74(16):1214-1220 (1970).
308. PARRISH, F. W., E. E. SMITH, and W. J. WHELAN. Action of starch-metabolizing enzymes on chemically-modified maltodextrins. Arch. Biochem. Biophys., 137(1):185-189 (1970).
309. PERINI, F., F. A. CAREY, and L. LONG, JR. 9-(β -d-apio-1-furanosyl)-2-chloradenine. Carbohyd. Res., 11(1):159-161 (1969).
310. REDPATH, J. R., and M. SIMIC. Effect of polar molecules on reaction of negative ions in radiolysis of hydrocarbon plus N₂O system in the gas phase. J. Phys. Chem., 73(9):2809-2814 (1969).
311. REED, R. I., and D. H. ROBERTSON. Mass spectrometry. Part II. Use of the technique. Chemistry, 42(8):11-15 (1969).
312. _____, and D. H. ROBERTSON. Mass spectrometry - selected topics. Appl. Spectrosc., 24(2):175-182 (1970).
313. REESE, E. T., J. E. LOLA, and F. W. PARRISH. Modified substrates and modified products as inducers of carbohydrases. J. Bacteriol., 100(3):1151-1154 (1969).
314. ROACH, J. F., W. ZAGIEBOYLO, and J. M. DAVIES. Shock wave generation in dielectric liquids using Q-switched lasers. Proc. IEEE, 57(9):1693-1694 (1969).
315. ROTH, L. M. Evolution and taxonomic significance of reproduction in Blattaria. Annu. Rev. Entomol., 15:75-96 (1970).

PIONEERING RESEARCH LABORATORY

Journal Articles (continued)

316. ROTH, L. M. The male genitalia of Blattaria. 1. Blaberus spp. (Blaberidae: Blaberinae). *Psyche*, 76(3):217-250 (1969).
317. SIMIC, M., P. NETA, and E. HAYON. Pulse radiolysis of aliphatic acids in aqueous solution. Part II. Hydroxy and polycarboxylic acids. *J. Phys. Chem.*, 73(12):4213-4219 (1969).
318. _____, P. NETA, and E. HAYON. Pulse radiolysis study of alcohols in aqueous solution. *J. Phys. Chem.*, 73(11):3794-3800 (1969).
319. SMITH, L. W., JR. Insects associated with oxidation lagoons in Missouri. *J. Entomol. Soc. Kansas*, 42(4):409-412 (1969).
320. _____ The relationship of mosquitoes to oxidation lagoons in Columbia, Missouri. *Mosquito News*, 29(4):556-563 (1969).
321. SOUSA, J. A., and R. A. KASHNOW. Laser photolysis: A versatile new technique. *Optical Spectra*, 3(4):48-52 (1969).
322. _____, and R. A. KASHNOW. Photochromic paper for imaging ultraviolet laser pulses. *Rev. Sci. Instrum.*, 40(7):966-967 (1969).
323. _____, J. WEINSTEIN, and A. L. BLUHM. The photochromism of 1-aryl-2-nitro-alkenes. *J. Org. Chem.*, 34(11):3320-3323 (1969).
324. WHARTON, D. R. A., and J. E. LOLA. Lysozyme action in the cockroach blood changes. *J. Insect Physiol.*, 15(10):1877-1886 (1969).

Technical Papers

325. ANGELINI, P. Volatile compounds produced from irradiation of packaging films. 30th Annual Meeting, Institute of Food Technologists, San Francisco, Calif., 25 May 1970.
326. _____ Effect of irradiation on volatile constituents of stored haddock flesh. 30th Annual Meeting, Institute of Food Technologists, San Francisco, Calif., 27 May 1970.

PIONEERING RESEARCH LABORATORY

Technical Papers (continued)

327. ANGELINI, P. Gas chromatographic and mass spectrometric techniques for analysis of volatile constituents of foods. Joint Meeting, Royal Institute of Chemistry (Western India Section and The Indian Chemical Society (Bombay Branch), Bombay, India, 5 March 1970.
328. BALL, D. H. Scientific accomplishments of Professor J. K. N. Jones, FRS. Presentation of the Hudson Award, Division of Carbohydrate Chemistry, American Chemical Society, New York, N. Y., 11 September 1969.
329. BARTOSHUK, L. M. Modification of taste qualities. Swiss Federal Institute of Technology, Zurich, Switzerland, July 1969.
330. _____ Taste quality shifts and sensory coding. Seminar, Pierce Foundation, Yale University, New Haven, Conn., September 1969.
331. BAZINET, M. Some qualitative and quantitative aspects of time of flight output data in a coupled GC/MS system. 11th Annual TOF Mass Spectrometer Symposium, Rochester, N. Y., October 1969.
332. BLUHM, A. L., and J. WEINSTEIN. Stable radicals by photooxidation of nitrones. 159th National American Chemical Society Meeting, Houston, Tex., 23 February 1970.
333. DOGLIOTTI, L. M., and E. HAYON. Primary species produced in a flash photolysis of cysteine and cystine in aqueous solution. Fifth International Conference on Photochemistry, Yorktown Heights, N. Y., September 1969.
334. ETTLINGER, M. G. Mustard oils in plants. Seminar in Botany, Harvard University, Cambridge, Mass., February 1969.
335. _____ Remarks. Evening discussion on oximes, nitriles and related compounds. 11th International Botanical Congress, Seattle, Wash., August 1969.
336. GENTILE, R. L. Suppression of intake by the addition of saccharin. Proc. Third International Symposium on Olfaction and Taste, Rockefeller University, New York, N. Y., August 1969.

PIONEERING RESEARCH LABORATORY

Technical Papers (continued)

337. HALFORD, M. H. Synthesis and chemistry of thiophen and pyrrolidine analogues of the branched-chain sugar apiose. Seminar, Lovett Memorial Group, Harvard Medical School at the Massachusetts General Hospital, Boston, Mass., January 1969.
338. HAYON, E. Triplet excited states of pyrimidines and purines in solution. American Chemical Society Meeting, New York, N. Y., September 1969.
339. _____ Optical absorption spectra of ketyl radicals and radical anions of some pyrimidines. American Chemical Society Meeting, New York, N. Y., September 1969.
340. _____ Triplet excited states of pyrimidines and purines in solution. International Symposium on Biological Molecules in Their Excited States, Arden House, New York, N. Y., October 1969.
341. _____ Site of attack of hydrated electrons on the molecular structure of the pyrimidine and purine bases of DNA. International Conference on Primary Radiation Effects in Chemistry and Biology, Buenos Aires, Argentina, March 1970.
342. _____ Yield of ions and excited states produced in the radiolysis of polar liquids. Dependence upon dielectric constant. Fourth International Congress of Radiation Research, Evian, France, June 1970.
343. _____, T. IBATA, N. N. LICHTIN, and M. SIMIC. Transient species produced by attack by OH upon simple amides in aqueous solution. Fourth International Congress of Radiation Research, Evian, France, June 1970.
344. _____ Chairman of session, Radiation Chemistry of Organic Systems. Fourth International Congress of Radiation Research, Evian, France, June 1970.
345. _____ Acid-base properties of organic-free radicals in solution. Hebrew University, Institute of Chemistry, Jerusalem, Israel, June 1970.
346. _____ Short-lived inorganic nitrogen intermediates. Hebrew University, Physical Chemistry Dept., Jerusalem, Israel, June 1970.

PIONEERING RESEARCH LABORATORY

Technical Papers (continued)

347. HAYON, E. Study of short-lived intermediates using pulse radiolysis and flash photolysis techniques. Institute of Physics, University of Porto Alegre, Brazil, March 1970.
348. _____ Pulse radiolysis and flash photolysis of some pyrimidines in aqueous solution. IVIC, Caracas, Venezuela, March 1970.
349. HEARNS, J. F. Effect of advance cueing on detection of targets in a visual search task. Human Factors Society, Philadelphia, Pa., October 1969.
350. HEINMETS, F. Cell growth regulation and hormonal induction of enzymes. Cell Physiology Laboratory, Bethesda, Md., 18 February 1970.
351. _____ Substrate and hormonal induction of enzymes. National Biomedical Research Foundation, Silver Spring, Md., 19 February 1970.
352. _____ A general model-system for the analysis of hormone induced enzyme synthesis and its regulation in high organisms. Eighth Annual Symposium on Biomathematics and Computer Science, Houston, Tex., 23 March 1970.
353. HOFF, L. A., R. L. GENTILE, and H. L. JACOBS. Effects of food deprivation on intake of quinine-adulterated diets. Federation of American Societies of Experimental Biology, Atlantic City, N. J., April 1969.
354. HOFFMAN, M. Z., and M. SIMIC. Pulse radiolysis and flash photolysis of phenyl carboxylic acids in aqueous solution. Fourth International Congress of Radiation Research, Evian, France, June 1970.
355. JACOBS, H. L. Taste as biological parameter in appetitive and nutritional processes. Seminar, Department of Nutrition, Harvard School of Public Health, Cambridge, Mass., December 1969.
356. _____ Basic research on sensory mechanisms in taste. Seminar, Army Research Office, Interservice Round-Table on Human Resources, Washington, D. C., October 1969.

PIONEERING RESEARCH LABORATORY

Technical Papers (continued)

357. KRONMAN, M. J., and L. G. HOLMES. Tryptophan fluorescence in native and denatured proteins. Federation of American Societies for Experimental Biology, Atlantic City, N. J., April 1969.
358. LANGMUIR, M. R., and E. HAYON. Transient species produced in the photochemistry of 5-bromouracil and its N-methyl derivatives. American Chemical Society Meeting, New York, N. Y., September 1969.
359. LONG, L., JR. Biodegradable detergents. Briefing to Mr. Charles Poor, Acting Assistant Secretary of the Army for Research and Development, Lt. Gen. Austin Betts, Chief, OCRD, Department of the Army, Dr. M. E. Lasser, Chief Scientist, AMC, Pentagon, Washington, D. C., January 1969.
360. McCORMICK, N. G., and H. S. LEVINSON. Spore germination properties of Bacillus megaterium mutants. 70th Annual Meeting, American Society for Microbiology, Boston, Mass., May 1970.
361. MERRITT, C., JR. The analysis of food volatiles by means of combined gas chromatography and mass spectrometry. Seminar, Department of Chemistry, University of Maryland, College Park, Md., April 1969.
362. _____ Chemical changes in the flavor of meats. International Atomic Energy Agency/AEC International Training Course on Food Irradiation Technology, Massachusetts Institute of Technology, Cambridge, Mass., July 1969.
363. _____ Techniques of combined gas chromatography and mass spectrometry. NATO Advanced Study Institute on Mass Spectrometry, University of Lisbon, Lisbon, Portugal, August 1969.
364. _____ Operational parameters in combined gas chromatographic/mass spectrometric analysis. Analytical Topical Group, Akron Chapter, American Chemical Society, Akron, Ohio, 19 March 1970.
365. _____ Current techniques in gas chromatography-mass spectrometry. Joint Meeting, Analytical Group, Northeastern Section, ACS, and the Mass Spectrometry Group, Boston, Mass., March 1970.
366. MOSKOWITZ, H. R. Theory of scaling. Seminar, Food Laboratory, NLABS, Natick, Mass., November 1969.

PIONEERING RESEARCH LABORATORY

Technical Papers (continued)

367. MOSKOWITZ, H. R. Studies of sweetness, pleasantness, and taste intensity of sweet substances. Psychophysics Group Seminar, Harvard University, Cambridge, Mass., December 1969.
368. NETA, P., M. SIMIC, and E. HAYON. Pulse radiolysis study of amino acids. American Chemical Society Meeting, New York, N. Y., September 1969.
369. NICHOLS, T. L., and S. D. TANENHOLTZ. Effects of increments in a sinusoidal pedestal on the vertex potential. 78th Meeting, Acoustical Society of America, San Diego, Calif., November 1969.
370. PILSWORTH, M. N., JR., and H. E. ROBINSON. Thermal conductivity of rubber from 134 to 314°K including the glass transition. Ninth Conference on Thermal Conductivity, Iowa State University, Ames, Iowa, October 1969.
371. ROBBINS, F. M., L. G. HOLMES, and R. E. ANDREOTTI. Nitration of tyrosines in α -lactalbumin. National Meeting ACS, New York, N. Y., September 1969.
372. ROBERTSON, D. H., and R. I. REED. Naive analysis of alkanes. International Symposium on Mass Spectrometry, Japanese Chemical Society, Kyoto, Japan, September 1969.
373. ROTH, L. M. Reproductive behavior and taxonomy of the Blattaria. Conference on Behavior of Arthropods. Acadian Entomological Society, University of Maine, Orono, Me., 5 August 1969.
374. _____ Stimuli regulating reproduction in cockroaches. International Colloquium on the Influence of Stimuli on Gametogenesis of Insects, Tours, France, 12 September 1969.
375. _____ Entomological research in the U. S. Army Pioneering Research Laboratories, Natick. Hackley School, Tarrytown, N. Y., October 1969.
376. _____ Taxonomic value of male genitalia of Blaberidae (Blattaria). Annual Meeting, Entomological Soc. America, Chicago, Ill., December 1969.

PIONEERING RESEARCH LABORATORY

Technical Papers (continued)

377. ROTH, L. M. Nervous and hormonal control of reproductive behavior in Blattaria. University of Iowa, Iowa City, Iowa, 5 December 1969.
378. _____ Evolution of reproduction and its taxonomic significance in cockroaches. University of Iowa, Iowa City, Iowa, 6 December 1969.
379. _____ Cockroach reproduction and evolution. The Academy of Natural Sciences, Philadelphia, Pa., 28 January 1970.
380. _____ Evolution of cockroach reproduction, and its taxonomic significance. Natural History Seminar, Harvard University, 25 February 1970.
381. _____ Reproductive biology of cockroaches. Grace H. Griswold Lecture in Entomology, Cornell University, 9 March 1970.
382. _____ Mating behavior in mosquitoes and cockroaches. New York Entomological Society, American Museum of Natural History, 17 March 1970.
383. _____ The physiology of reproductive behavior of cockroaches. Entomological Society of Washington, U. S. National Museum, Washington, D. C., 2 April 1970.
384. SIMIC, M., P. NETA, and E. HAYON. Pulse radiolysis of aliphatic acids in solutions. American Chemical Society Meeting, New York, N. Y., September 1969.
385. _____ Formation of organic peroxy radicals in pulse radiolysis of aqueous solutions. Brookhaven National Laboratory, Upton, N. Y., May 1969.
386. _____ Effect of polar molecules on reactions of negative ions in the radiolysis of hydrocarbon + N_2O systems in the gas phase. National Bureau of Standards, Washington, D. C. June 1969.
387. _____ N_2O as a scavenger of radiation produced electrons in the gas phase. Carnegie-Mellon Institute, Pittsburgh, Penn., September 1969.
388. _____ Acid-base properties of organic free radicals. Argonne National Laboratory, Argonne, Ill., September 1969.

PIONEERING RESEARCH LABORATORY

Technical Papers (continued)

389. SIMIC, M. Acid-base properties of -OH, -COOH, and -NH₂ substituted alkyl radicals in aqueous solution. Boston University, Boston, Mass., November 1969.
390. _____, P. NETA, and E. HAYON. Pulse radiolysis study of simple peptides in aqueous solutions. Fourth International Congress of Radiation Research, Evian, France, June 1970.
391. TREININ, A. Flash photolysis study of oxyhalide ions in solution. Ohio State University, Columbus, Ohio, November 1969.
392. WALSH, J. T. Applications of the gas density cell and micro thermal conductivity cells. Seminar, Gow-Mac Instrument Company, Madison, N. J., January 1969.
393. WHARTON, D. R. A. Lysozyme action in the symbiotic and symbiont-free cockroach. Joint Meeting, American Society of Parasitologists and the American Society of Tropical Medicine and Hygiene, Washington, D. C., November 1969.
394. WHITE, R. M. Changes in body size in American men. Third Annual Technical Conference, Apparel Research Foundation, October 1969.
395. _____ Anthropology. Behavioral Science Classes, Concord-Carlisle Regional High School, Concord, Mass., October 1969.

Book Chapters

396. BARTOSHUK, L. M., G. P. DATEO, D. J. VANDENBELT, R. L. BUTTRICK, and L. LONG, JR. Effects of Gymnema sylvestre and Synsepalum dulcificum on taste in man. In Olfaction and Taste, Proc. Third International Symposium. C. Pfaffman (ed.), Rockefeller University Press, New York, N. Y., pp. 436-444 (1969).
397. GENTILE, R. L. The role of taste quality in the control of food intake: Depression of intake by saccharin-adulteration. In Olfaction and Taste, Proc., Third International Symposium. C. Pfaffman (ed.), Rockefeller University Press, New York, N. Y. (1969).

PIONEERING RESEARCH LABORATORY

Book Chapters (continued)

398. HEINMETS, F. Chapters: a) Analog computers; b) Protein synthesis and its control in mammalian protein metabolism. In Application of Computers to the Study of Protein Metabolism. H. N. Munro (ed.), Academic Press, New York, N. Y., vol. 3 (1969).
399. _____, ed. Computer analysis of cell growth model system in concepts and models of biomathematics: simulation techniques and methods. Marcel Dekker, Inc., New York, N. Y. (1969).
400. JACOBS, H. L. Biocontrol systems in food intake. In Biomechanics, D. Bootzin and H. C. Muffley (eds.), Plenum Press, New York, N. Y., pp. 81-93 (1969).
401. LEVINSON, H. S., and M. T. HYATT. Activation of Bacillus megaterium spore germination. In Spores IV. L. L. Campbell (ed.). American Society for Microbiology, Bethesda, Md., 4:262-275 (1969).
402. MERRITT, C., JR. The combination of gas chromatography with mass spectrometry. In Applied Spectroscopy Reviews, 3(2):263-326 (1970).
403. PFAFFMAN, C., L. M. BARTOSHUK, and D. H. MCBURNEY. Taste psychophysics in taste physiology. L. M. Beidler (ed.), Springer-Verlag, New York, N. Y. (1970).

Other Publications

404. CORUM, C. J., M. R. ROGERS, and J. E. ZAJIC. Federal regulations and practical control microbiology for disinfectants, drugs, and cosmetics. Society for Industrial Microbiology, Special Publication No. 4, 1969. 182 p.

INDEX TO AUTHORS
(Entry Number)

- Agarwal, S. R. 159, 258
Akrep, J. P. 257
Allen, A. L. 65
Anderson, E. E. 14, 120
Andreotti, R. E. 371
Anellis, A. 137, 160
Angelini, P. 258, 325, 326, 327
Antkowiak, H. E. 27
Assaf, J. E. 42
Ay, C. 205
- Baker, L. J. 161
Ball, D. H. 279, 284, 328
Barron, E. R. 54, 56, 59, 70, 274
Bartoshuk, L. M. 329, 330, 396, 403
Bazinet, M. 331
Benedict, R. P. 24
Berkowitz, D. 137, 160
Bishov, S. J. 162
Bisset, F. H. 280
Black, E. D. 297
Blodgett, J. 116
Bluhm, A. L. 281, 323, 332
Boeckh, J. 282
Bollenback, G. N. 283
Breyer, J. D. 247
Brierly, W. B. 103, 104
Brockmann, M. C. 138, 139, 163, 223
Brown, E. J. 34, 35
Brynjolfsson, A. 140
Burns, M. 54, 55, 56
Burse, R. L. 274
Bustead, R. L. 13
Buttrick, R. L. 396
Byrne, R. J. 22
- Caldwell, D. M. 164
Campbell, C. 278
Campbell, R. J. 234
Carey, F. A. 309
Chabot, R. S. 229
Chakoian, G. 28, 36
- Chalk, R. 284
Chambers, J. V. 113, 114
Chang, W. S. 31
Church, B. D. 167
Clapp, R. C. 280, 298
Coburn, R. A. 280
Cohen, G. 43
Cohen, J. S. 165
Cohen, M. K. 217
Corum, C. J. 404
Cottman, B. 167
Crain, B., Jr. 44
- Dabberdt, W. F. 100, 101, 105, 106, 115
Darby, R. T. 285
Dateo, G. P. 396
Davies, J. M. 286, 287, 314
Decareau, R. V. 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246
De Santis, G. C. 37, 41
Dietz, A. E. 229
Dodd, A. V. 93
Dogliotti, L. M. 333
Drake, B. 146
Driver, M. 166
Dungan, A. L. 24, 26, 230
Dusablon, L. V. 65, 66
Duxbury, V. 45
- El-Bisi, H. M. 117, 137
Ettlinger, M. G. 280, 334, 335
- Falabella, G., Jr. 38, 39
Feeherry, F. 212, 213
Feng, P. Y. 140
Figucia, F., Jr. 46
Fitzmaurice, W. J. 118
Flanagan, J. H. 12, 18
Flentge, R. L. 13
Fox, M. 230

- Frederick, E. B. 47, 71
 Frodigh, R. J. 94
 Gentile, R. L. 288, 295, 336, 353, 397
 Gerace, F. J. 1
 Germaine, G. R. 167
 Ghose, T. K. 141, 142, 168, 224
 Giffey, J. W. 162
 Gillis, H. A. 156
 Goebel, D. E. 49
 Goldenberg, D. M. 275
 Goldstein, S. R. 231
 Golik, R. 283
 Goodrick, T. F. 29
 Gordon, F. 278
 Gorfien, H. 14, 119, 120, 121
 Goswami, B. C. 51
 Gould, J. W. 147, 190
 Greenberger, M. 272
 Hadjoudis, E. 289
 Halford, M. H. 337
 Halik, J. 123
 Halliday, J. W. 140
 Harris, N. E. 143, 169
 Hastings, A. D., Jr. 94
 Hayon, E. 289, 290, 291, 292, 297, 299, 306, 307, 317, 318, 333, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 358, 368, 384, 390
 Healy, E. M. 48
 Hearn, J. F. 293, 349
 Heiligman, F. 152, 159, 166, 170
 Heinmets, F. 294, 350, 351, 352, 398, 399
 Helmer, R. L. 118, 122, 136, 158
 Henick, A. S. 162, 204
 Henning, W. L. 211
 Henry, M. C. 47, 50
 Hinnergardt, L. C. 136, 158
 Hoff, L. A. 295, 353
 Hoffman, M. Z. 354
 Hoge, H. J. 273
 Hollender, H. A. 144, 171, 172, 173, 174
 Hollis, F. 123
 Holmes, L. G. 357, 371
 Holmes, P. K. 296
 Hu, K. H. 247, 259
 Hyatt, M. T. 300, 301, 401
 Iacono, V. D. 44, 90
 Ibata, T. 343
 Jacobs, H. L. 353, 355, 356, 400
 James, H. 2, 3
 Jan, S. F. 30
 Jarboe, C. 137
 Jarboe, J. K. 175
 Jarrett, R. D. 140
 Jeffrey, G. A. 298
 Johansson, B. 146
 Johnson, K. R. 14, 120, 127, 128, 130
 Johnson, N. B. 49
 Jones, E. 212
 Josephson, E. S. 145, 157, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186
 Kaplan, A. M. 272
 Kaplow, M. 123
 Kapsalis, J. G. 146, 166, 187, 188, 189, 222
 Kashnow, R. A. 321, 322
 Keene, J. P. 297
 Kemper, D. 160
 Kennedy, S. J. 72, 73, 74, 75, 76, 77, 78, 79, 92
 Kenyon, E. M. 147, 190, 228
 Killoran, J. J. 258
 Kim, H. S. 298
 Klicka, M. V. 144, 148, 149, 150, 151, 191, 192, 193, 194, 195, 196, 197, 221
 Kostick, J. 168, 224
 Kronman, M. J. 357
 Labadan, R. M. 95
 Lacasse, P. 190
 Lacey, S. E. 24
 Laible, R. C. 50, 80
 Lampi, R. A. 260, 270
 Langmuir, M. E. 299, 358

- Larsen, R. E. 81
 Lastnik, A. 59, 70
 Lawrence, J. A. 125
 Learson, R. J. 152
 Lee, F. H. 198, 221
 Lettau, H. H. 101
 Levasseur, L. A. 204
 Levin, W. B. 4, 5, 6, 7, 8, 9,
 10, 11
 Levine, A. S. 248
 Levinson, H. S. 296, 300, 301, 360,
 401
 Lewicki, P. R. 225
 Lichtin, N. N. 343
 Lintner, M. A. 284, 302
 Loconti, J. D. 259
 Lola, J. E. 313, 324
 Long, L. Jr. 280, 284, 298, 302,
 309, 358, 396
 LoPiccolo, M. 278
 Luyet, B. J. 124
 Lyons, W. J. 51

 Ma, Y. H. 81
 Mabrouk, A. F. 175
 Mackenzie, A. P. 124
 MacNair, R. N. 60
 Malwalk, T. 278
 Maly, G. 164
 Mandels, M. 226
 Mansur, R. T. 233
 Markus, Z. 199
 Martin, T. G., III 126
 Mauderly, J. L. 125, 164
 McBurney, D. H. 403
 McClaine, L. A. 261, 271
 McCormack, M. E. 262
 McCormick, N. G. 360
 McGarry, F. J. 80
 McGaughey, R. L. 24
 McGinnies, W. G. 97
 McGinnis, J. M. 274
 McIsaac, H. J. 92
 McNutt, J. 200, 201
 McQue, B. 287
 Mehrlich, F. P. 153, 154, 202
 Merritt, C., Jr. 361, 362, 363, 364,
 365, 402

 Merritt, G. J. 52
 Meyerholz, R. C., Jr. 24
 Miles, T. D. 61, 82, 83, 84
 Miller, K. 127, 128, 129
 Moak, E. L. 229
 Monego, C. J. 229
 Monreal, J. 303
 Moskowitz, H. R. 304, 305, 366,
 367
 Murrmann, R. P. 126

 Natsios, B. A. 48
 Nebesky, E. A. 249, 250, 251, 263,
 264, 265, 266
 Neta, P. 306, 307, 317, 318, 368,
 384, 390
 Neuhaus, W. 275
 Nichols, T. L. 369
 Niedringhaus, T. E. 94
 Nordstrom, H. 123

 Ohman, H. L. 96
 O'Sullivan, D. J., Jr. 252

 Palese, D. J. 249, 250, 251, 265,
 266
 Panke, D. 298
 Parker, E. P. 63
 Parrish, F. W. 279, 283, 308, 313
 Paylore, P. 97
 Perini, F. 309
 Pfaffman, C. 403
 Pfister, D. H. 45
 Pilsworth, M. N., Jr. 370
 Planalp, J. M. 94, 107, 110
 Pober, Z. 164, 203
 Pope, C. J. 62, 63
 Porter, W. L. 204
 Powers, E. M. 117, 159, 205
 Prell, P. A. 206
 Prifti, J. K. 232
 Proffitt, R. B. 229
 Prosser, R. A. 64, 66

 Rahman, A. R. 14, 119, 120, 121,
 127, 128, 129, 130,
 131, 132, 133, 207,
 208, 209, 210, 211

- Ramsdell, F. L. 53
 Ramsley, A. O. 48, 85
 Redpath, J. R. 310
 Reed, R. I. 311, 312, 372
 Reese, E. T. 303, 313
 Rinaldi, P. C. 147
 Riordan, P. 98
 Ripperger, E. A. 30, 31, 32
 Rizzo, F. J. 86
 Roach, F. J. 286, 314
 Robbins, F. M. 371
 Robertson, D. H. 311, 312, 372
 Robertson, S. H. 49
 Robinson, H. E. 370
 Robison, W. C. 108, 111
 Rodzen, R. 54
 Rogers, M. R. 404
 Ronsevalli, L. S. 152
 Rosa, E. 45
 Ross, E. W., Jr. 15, 16, 17, 19, 20
 Ross, G. S. 286
 Roth, L. M. 315, 316, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383
 Rowe, J. A. 227
 Rowley, D. B. 205, 212, 213
 Rubinate, F. J. 253, 254, 267, 268
 Rust, L. W. 81
 Sass, H. 282
 Scagnelli, P. 203
 Scardino, F. L. 51
 Schafer, G. 129, 131, 132, 133
 Schneider, N. S. 65, 66
 Schulz, G. L. 233, 255, 256, 269
 Scribano, F. 54, 55, 56
 Seligsberger, L. 87, 88
 Shah, J. 68
 Sherman, D. E. 134
 Shults, G. W. 214
 Shute, S. J., Jr. 40
 Sieling, D. H. 21
 Silverman, G. J. 155, 215, 216, 217, 225, 227
 Simic, M. 306, 307, 317, 318, 343, 354, 368, 384, 385, 386, 387, 388, 389, 390
 Simpson, E. S. 99
 Singer, R. 54
 Sinskey, T. J. 155
 Smith, E. E. 308
 Smith, L. W., Jr. 319, 320
 Smith, R. S. 23
 Snell, E. W. 66
 Sokoloff, A. 277
 Sousa, J. A. 321, 322, 323
 Spano, L. A. 81, 89, 90
 Spracklin, B. W. 152
 Stapler, J. T. 60
 Sultan, J. 80
 Tanenholtz, S. D. 369
 Taub, I. A. 156, 218
 Taylor, G. R. 119, 127, 128, 131, 132, 133
 Teichner, W. H. 278
 Thomas, M. H. 134, 157
 Thompson, W. F. 102, 112
 Travis, B. V. 95
 Treinin, A. 391
 Tuomy, J. M. 118, 122, 135, 136, 158, 219
 Vandenbelt, D. J. 396
 Vilece, R. J. 143
 Walker, J. E., Jr. 188, 189, 222
 Wall, M. A. 165
 Walsh, J. T. 392
 Waranch, R. 278
 Weber, J. 226
 Weiner, L. I. 57, 62, 67, 68, 69, 92
 Weinstein, J. 323, 332
 Wendt, T. M. 272
 Werkowski, S. J. 23
 Westcott, D. E. 119, 121, 131, 132, 133, 190, 211

Wharton, D. R. A. 282, 324, 393
Whelan, W. J. 308
White, R. M. 91, 394, 395
White, V. M. 220
Wierbicki, E. 159, 166, 214
Wilcox, C. K. 24
Williams, R. 221
Wilson, A. F. 58
Winters, R. W. 126
Wolf, M. 188, 189, 222
Wolff, J. W. 33
Wong, E. 109

Zagieboylo, W. 314
Zajic, J. E. 404
Zolner, D. J. 52

DISTRIBUTION

US Dept of Agriculture
Division of Acquisitions
National Agricultural Library
Washington, DC 20250

Air Force Cambridge Research Labs
Laurence G. Hanscom Field
ATTN: ARMXLR, Res Library, Stop 29
Bedford, Massachusetts 01731

Commander
US Army Chemical Research and
Development Laboratory
ATTN: Tech Library
Edgewood Arsenal, Maryland 21010

Commanding Officer
US Army Coating and Chemical Labs
ATTN: Tech Library
Aberdeen Proving Ground
Maryland 21005

Commanding Officer
US Army Cold Regions Research
and Engineering Laboratory
ATTN: Tech Library
Hanover, New Hampshire 03755

Commanding General
USA Combat Development Command
ATTN: Tech Library
Fort Belvoir, Virginia 22060

US Army Command and General Staff
College
Library Division
Fort Leavenworth, Kansas 66027

Commanding General
US Continental Army Command
ATTN: Tech Library
Fort Monroe, Virginia 23351

Commanding General
US Army Electronics Research and
Development Laboratories
ATTN: Tech Info Div
Fort Monmouth, New Jersey 07703

Commanding Officer
US Army Mobility Equipment
Research and Development Center
ATTN: Technical Documents Center
Bldg 315, Vault
Fort Belvoir, Virginia 22060

Commanding Officer
US Army Human Engineering
Laboratories
Aberdeen Proving Ground
Maryland 21005

Commandant
US Army Infantry School
ATTN: Tech Library
Fort Benning, Georgia 31905

Exchange and Gift Division
Library of Congress
Washington, DC 20540

Commandant of the Marine Corps
Headquarters Marine Corps
CODE A04D
Washington, DC 20380

Commanding Officer
Army Materials and Mechanics
Research Center
ATTN: Tech Library
Watertown, Massachusetts 02172

Commanding General
US Army Combat Developments
Command
Institute of Land Combat
ATTN: CDILC-MDL
Fort Belvoir, Virginia 22060

DISTRIBUTION (cont'd)

Commanding General
US Army Materiel Command
Research Division AMCRD-RL
R&D Directorate
Bldg T-7
Washington, DC 20315

Commanding General
US Army Missile Command
Redstone Scientific Information
Center
ATTN: Chief, Documents Section
Redstone Arsenal, Alabama 35808

Commanding General
US Army Munitions Command
Picatinny Arsenal
ATTN: Technical Library
Dover, New Jersey 07801

Director
NASA Scientific and Technical
Information Facility
ATTN: Acquisitions Branch
(S-AK/DL)
PO Box 33
College Park, Maryland 20740

Commander
US Naval Applied Science Lab
Tech Library
Bldg 291, Code 9832
Naval Base
Brooklyn, New York 11251

Commander
US Naval Research Laboratory
Code 6140
Washington, DC 20390

Chief, Bureau of Ships
Room 2510, Main Navy
Code 364A4
18th and Constitution Avenue, NW
Washington, DC 20001

Commanding General
US Army Nuclear Defense Laboratory
ATTN: Tech Library
Army Chemical Center
Maryland 21005

Commandant
US Army Quartermaster School
ATTN: Quartermaster Library
Fort Lee, Virginia 23801

Director
Army Technical Information
US Army Research Office
OCD, Room 209A
Arlington, Virginia

Library
Southern Utilization R&D Div
Agricultural Research Service
US Department of Agriculture
PO Box 19687
New Orleans, Louisiana 70119

Commanding General
USA Test and Evaluation Command
ATTN: Tech Library
Aberdeen Proving Ground
Maryland 21005

Director, Library
US Army War College
Carlisle Barracks
Pennsylvania 17013

Director
US Army Advanced Materiel
Concepts Agency
ATTN: AMXAM-AC
Department of the Army
Washington, DC 20315

Commanding General
US Army Weapons Command
ATTN: Tech Library
Rock Island, Illinois 61200

DISTRIBUTION (cont'd)

Library
US Weather Bureau
Washington, DC 20235

Commanding Officer
Harry Diamond Laboratories
ATTN: Tech Library
Washington, DC 20438

Commanding Officer
US Army Foreign Sciences & Technical
Center
ATTN: AMXST-CR-1
Washington, DC 20315

Commanding Officer
Defense Logistics Studies Information
Exchange
US Army Logistics Management Center
ATTN: AMXM-D
Fort Lee, Virginia 23801

Internal

- 2 - ARIEM
- 1 - DGSC Representative, Richmond
- 1 - DPSC Representative, Philadelphia
- 2 - Military Liaison Office
- 2 - Navy T&C Research Unit
- 2 - Technical Library
- 20 - Technical Library (for Defense Documentation Center)
- 1 - WPAFB Representative, Dayton
- 50 - NLABS Small Business Representative

Unclassified

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) US Army Natick Laboratories Natick, Massachusetts 01760		2a. REPORT SECURITY CLASSIFICATION Unclassified	
		2b. GROUP	
3. REPORT TITLE BIBLIOGRAPHY OF TECHNICAL PUBLICATIONS AND PAPERS			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) July 1969 - June 1970			
5. AUTHOR(S) (First name, middle initial, last name)			
6. REPORT DATE July 1970		7a. TOTAL NO. OF PAGES 49	7b. NO. OF REFS 404
8a. CONTRACT OR GRANT NO.		9a. ORIGINATOR'S REPORT NUMBER(S) 71-1-TL	
b. PROJECT NO.		9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c.			
d.			
10. DISTRIBUTION STATEMENT This document has been approved for public release and sale; its distribution is unlimited.			
11. SUPPLEMENTARY NOTES		12. SPONSORING MILITARY ACTIVITY U. S. Army Natick Laboratories Natick, Massachusetts 01760	
13. ABSTRACT A bibliographic listing of technical publications and papers by the personnel of the U. S. Army Natick Laboratories and its contractors for the period July 1969 through June 1970.			

DD FORM 1473
1 NOV 65REPLACES DD FORM 1473, 1 JAN 64, WHICH IS
OBSOLETE FOR ARMY USE.

Unclassified

Security Classification

Unclassified

Security Classification

14. KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
Research	8					
Reports	8					
Publications	8					
Development	8					
Army Natick Laboratories	9					
Bibliographies	0					

Unclassified

Security Classification